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To Wm Cullen M.D. &c

B: Rush

To whom shall I present this first
effort in Physic but to you sir to
whom I owe so much of my hy. Dr.
— you first taught me to think for myself
& it was by your example I was delivered
from the Tyranny of great names in Physic

James Rush B. Rush B. Rush

J. Rush B. Rush B. Rush

B. Rush B. B. Rush

B. Rush B. Rush

B. Rush B. Rush

"Solidorum Natura, Solidorumque Morbi, quos per negligentiam Nostram intactos adhuc luget Medicina, examinandi sunt nobis & perfundendi"

Baglivi

However useful such Inquiries may be in other respects they seldom do much service in Physic. Most of the ancient Physicians distinguished Diseases so much by the Symptoms given to be by proximate Causes y: in many Cases it is difficult to affix precise Ideas to their Names of Diseases more especially

Quæritur - the Historia Morbi - Dignosis - Causes Prognosis - and Methodus Medendi of the Putrid Bilious Fever?

Mr: President!

It is no uncommon Thing in Disserta-tions of this Nature to spend some time in en-quiring into the Opinions of Ancient, and ~~Modern~~ Authors. But as this would consume a great deal of time unnecessarily we shall only Observe that it Appears to have been: Lynochus Biliosa of Galen - the Lynochus putrida of Riverius, and the Febris Maligna vel petechialis of Junker. Some Authors have distinguished it by particular Names according to the Symptoms it Assumed. Thus when it is attended w: Dysentery

since the improvements of later Ages have
discovered their supposed Causes to be entirely
without foundation. Besides Climates and
Constitns. are subject to such great vicissitudes
from a thousand Accidents that Diseases
wch are always so much influenced by both
these Circumstances put on different appearances
in almost every Age & Country. I would not pretend
to say the Disease wch is designed ~~to~~ as the subject
of the follg. Paper was entirely unknown to
the Ancients. Some of them have dropped a
few Hints wch give us Reason to suppose they
were aware of it, but what they have said tends
so little to explain the Cause, or to point out
a rate & Method of curing the Disease that

we find it distinguished by Hippocrates by ye name of the Dysenteria Atrabiliaris; and when attended wth great Anxiety & Dejection of the Spirits in the Beginning of the Disease wch is very often the Case it is called by Avicenna the Febris Syncopa-lis.

among modern Authors this Disease has like-wise received a variety of names. thus we find it called the Bilious Fever - [the putrid Fever - the Bilious Remitting Fever] - and the yellow Fever all of which are One and the same Disease, and depend upon the same Cause. their only Difference consists in their Degree and not in their Kind.

It would be easy to prove this Assertion from a variety of Authorities; but a Quotation from Dr. Cleuch in Dr. Pringle's Diseases of the Army page 205 in wch he considers them as the same Disease only differing in the greater or

we shall receive but little Assistance from
complying their Sentiments upon this Subject.

Z

lesser violence of the Symptoms. [See also Dr. Cleghorn's Diseases of Minorca in which he tells us that they all prevailed in the same Season of the Year, and mutually propagated each Other — an Observation which all those who have been conversant w.th Diseases in warm Climates must have often seen confirmed].

I shall therefore in the following Paper consider them as One Disease and treat them as such. a Physician who has been used to the Disease will always know how to vary his Method of Cure according to the greater or lesser violence of the Disorder.

Historia Morbi

It generally appears about the Middle of Summer, or Beginning of Autumn, & for the most part ceases to rage upon the Approach

of cold weather. As soon as a Patient is seized
with this Disease he immediately feels a Prostration
of Strength - great Anxiety - intense Pain in the
Head - Coldness and Shivering. These Symptoms
are quickly succeeded by great Heat - a burning
Sensation about the Praecordia - a dry reddish
- florid or black Tongue - a hoarse shrill voice -
immense Thirst especially for cold acidulated
Drinks. The Lips and Teeth are covered with a black
kind of Sordes. The Urine has various Appea=
=rances - sometimes red - black, & in many
Cases bloody. The Respiration is difficult, and
laborious! the Pulse in the Beginning is full &
tense, but after a while becomes small - weak
& irregular. The Patient complains of a bitter
Taste in his Mouth — tosses himself in his Bed
from Side to Side without being able to rest long in
any Posture. he feels a violent fixed pain about

the Procordia w.th is always encreased upon being prest.
— the Whole Hypocondriac Region is swelled & hard. the
Patient nauseates Food, & vomits up every thing he takes
together w.th large Quantities of Green, & sometimes
blackish Bile resembling Coffee-Grounds. the Eyes
are inflamed — of a yellowish Colour, and often
suffused w.th Blood. the Bowels are sometimes
bound, and sometimes Open. the Face & whole
Skin are tinged of a yellow Colour which in the
Progress of the Disease is changed to a livid grey.
— Black Spots begin to make their Appearance
About the Neck and Breast. the Blood is now
poured forth in a thin dissolved State from the
Nose, ~~and~~ Mouth, and urinary Passages, & is some-
-times ejected in vomiting mixed w.th black Bile.
— the Hands & Feet now begin to grow cold. a Deli-
-rium comes On, & sometimes a Syncope. the
Limbs begin to tremble — the Patient now feels,

(4) The Malig^n Dysenteric Fever
The Bile in this Disease is often affected.
That discharge it to Patients. but y^e
Discharge here is widely diff^t from
ye Bilious Fever.

no Pain, & sometimes of a sudden recovery from his Delirium, and what is very surprizing feels an Appetite for Food. But at once he is seized w:th a fabulous Tendinum, and spasms in different parts of the Body or general Convulsions which for the most part close his Life.

It must not be imagined that this History belongs to all the different species of this Disease. it is perhaps very seldom found to have exactly ye order peculiar to it Only in its most malignant state. we have detailed them. ~~the Diseases~~ are more — it would be an endless task to point out ~~or lay~~ trial: and to the ~~Consul of the Low life~~ ~~degree of it~~ the symptoms w:th attend each degree ~~& that the violence of the Intermittent fever~~ of it that has been specified by Authors.

Causes w:ch predispose to or ~~produce~~ occasion it.

Diagnosis

After the symptoms here enumerated it will be easy to distinguish this Disease from (a)

1: The Ephemera by its longer Continuance — by the greater violence of the symptoms, & by the Occasional Causes which produce it.

2nd: From the common Inflamatory Fever by its prevailing most in summer & in warm Climates – by the Pulse which for the most part sinks on the 2nd or 3d day – by the Occasional Causes which excite it, and lastly by the first pain which the Patient feels in the Pit of his stomach.

3d: From the nervous Fever – by the greater Quickness of the Pulse – by the Restlessness of the patient – by the pain not being confined to the Head Alone, – and by the Patient's having no Disposition to sleep.

4th: From the miliary Fever – by the Eruptions happening in the Close, and not in the Beginning of the Disease – by their not proving Critical – & by the different Appearance of the Eruptions: in the miliary Fever they consist of little Tumors, whereas in the putrid Fever they have the Appearance of black Spots, and do not rise Above the Skin.

5th: From the Hepatitis – by the bilious vomiting –

(a) See Principle page 82. & 83

(b) Ibid p. 83. Nothing diff: more to be wish'd in Lapland & Nor: no Cont: Dis: Cold destroy. fin.

(c) This so much disposes Persons to be affected w: contag: Diseases of all kinds. That the Reason why the Plague and Other Pestilential Disorders prevail so much Cap Now that they did 100 Years ago has justly been attrib: to the greater use made of Veg: in Diet & formerly.

(d) Hill: p: 196 a Case from Spir: Liquors also generally expressed p: 146 here Sailors who drink so much are most subject to it called here by the French "La Fièvre matelotte" Hist: of Nurses.

by the Pulse's becoming soft on the 2nd or 3rd day — and by the greater Anxiety about the Precordia.
6th Jaundice — 6th Cholera Morbus.

Occasional Causes &c

Predisposing.

The most common Occasional Causes of this Disease are 1st: Heat joined w: Moisture (a) 2nd: very calm weather 3rd: the intense Heat of the Sun (b) 4th: great Quantities of Animal Food (c) 5th: Intemperance of all kinds (d) 6th: profuse Evacuations 7th: violent Exercise of the Body or mind (d) 8th: all stimulating high seasoned Diet 9th: ~~partic~~ Exhalations & 10th: Contagion from a Person labouring under the Disease. Perhaps none of these Occasional Causes are sufficient to produce a Disease except when they act in Conjunction w: the two last.

Proximate Cause

It were to be wished we could assign this as easily as we have done the Occasional Causes. Nature who seems to have delighted in simplicity

in her Other works has wrapped herself in a veil very:
animal Oeconomy, and ~~has~~ concealed her more se=
=cret Operations from our view. We no sooner
begin to investigate them, than we are at once
lost in a Circle of Causes & Effects. These Difficulties
occur w: the peculiar Force in our Inquiries into
the proximate Cause of this Disease.

It would employ too much time here to re=
=count all the Opinions that have subsisted
among Physicians upon this subject. I shall only
~~point~~ hint at one or two of them.

For a long time this Disease was supposed to
have its seat in the Bile upon the Ho: of a re=
=ceived Opinion, that it was more disposed to
Putrefaction than any of the Other Humors
of the Body. But we have direct Experiments
which prove the contrary of this Doctrine to
be true. See Dr Pringle's Appendix Exp: II.

(a) I am so far from thinking y^t it depends upon a morbid acrimony of the Bile that I rather imagine its acrimony is considerably diminished. all the secretions we know becomes acid by stagnation from their more fluid parts being absorbed & carried into the Circulation. ~~now~~ ~~nothing~~ ~~y^t~~ is c^e now as ye Bile is discharged in large quantities as soon as it is secreted, it has not time to acquire even y^e degree of acrimony wch is natural to it. I know many Physicians talk of Matter being thrown up & do ~~[illegible]~~

Mr. Bridei Gray Experiment 28: & Dr. Ramsay's Inaugural Dissertation Exp: 15th. Nor can we attri=
=bute the Disease to an increased secretion of Bile
any more than we can the small pox to the pro=
=fuse sweating, or the Hysteria to the immoderate
flow of Urine which generally take place in those
Diseases.(a)

An Opinion of later Date, & now more universally
received is that it is owing to a putrid Ferment
introduced into the Blood which has the power of
assimilating it to itself, and thus bringing on a gene=
=ral Putrefaction. This notion was Originally deri=
=ved from Galen whose words are "Putredo est
totius Corporis putrescentis in corruptam natu=
=ram mutatio" – The Chemists readily adopted
this Doctrine – they considered the Body in a Che=
Light they did their Chemical vessels, & imagined
that the same Processes were carried on there by

ea to corrode the Oesophagus & Fauces, but
I am apt to doubt this. y^e repeated Efforts
of Vomiting may render y^m more sensible
from inflam. from heartburn as to
y^e stimulus of y^e Bile, it may thus bring
on a great deal of pain. for my part I
have paid great Attention to ye Disease &
have often stood by Patients in ye Fit of
in this Disease, but
Vomit: & yet never heard 'em complain of
anything like that worse pain some Authors
speak of. —

means of Menstrua - Ferments - Registers &c which they saw every day in their Operations, entirely forgetting the Animation of the human System which necessarily influences all the Operations &c: &c: to go forward in the Body in such a manner as to render it difficult to illustrate any of its Functions by Analogies borrowed from other Parts of Nature.

This Opinion Methó. supported so much by Analogy will appear very improbable when we consider

1st. In all Cases of Assimilation by means of Fermentation we see an entire Change of Properties produced. - a total Decomposition ensues, and the new Product retains none of the Properties of its former Mixt. but we see nothing of this kind to take place in Animal Powers. the Blood is only dissolved, or its component parts mixed, but no new Change is induced in its Nature or Properties.

‡ Besides if the Disease was the Consequence of Putrefaction it wd be worse while the putrefn was greatest, but instead of this we find the most violent Symptoms in the Beginning at wh time these Dis: are infectg as will be shown hereafter

(b) The Petechia these are no Marks of Putrefaction, since we often see them in Diseases purely infectg as well as fretid ‡

(c) It sometimes lies — for 10 or 12 Days before it excites the Disease & sometimes brings on it at once [see Lind &c] in these Cases surely no Putrefn could have taken place. The patients mentioned by Lind were seized at a moment they recd the Contagion. Dr Pringle mentions several Instances of Soldiers who were seized in a ~~Corporeal & Literary Essays of Edinburgh~~ manner equally sudden wh these men all the he does not tell us they perceived any smell at the time. But it is highly probable these Symptoms could arise from nothing else but the immediate Effect on of the Contagion on their Constitutions — Diff. in the time in which the Disease

2nd: We often see all the symptoms of a putrid Fever arising from Contagion, and yet the Blood so far from being dissolved retains an Inflam: Crust. a remarkable instance of this may be seen in De Haen's Works vol: 2: page 163. (b)

3d: All Ferments begin to act as soon as they are applied to the Bodies anew: they are designed to act ~~with the same Force~~ generally Always as ~~they have been received~~ w: Re=
=gard to Contagion. [We often find it lie in y: Constitution for Days and weeks without producing any sensible Effects as in the Case of the Small Pox & Measles, & several other contagious Diseases].

4th: All Ferments act uniformly on whatsoever Bodies they are applied to, but Contagion we know does not. We often see Persons exposed to it for Months & Years without catching the Disorder. Dr Lining Relates that the Negroes in Carolina were never subject to this Disease altho' they were constantly

affected may easily be accounted for by having Recourse to the diff.t Degrees of Sensib.y in different Constitutions, for the Disease always appears to be in a Ratio compounded of the Sen.y ~~of the~~ or ~~the~~ Predisposition of the Patient & the violence of the contagious Matter w.h affects it.

(a) During the Spreading of many contagious Fevers we often see Physicians & Nurses who are most exposed to them escape the Disease.

exposed to it. (a) What can this be owing to? — perhaps we shall be able to show hereafter that it depends upon a Irritable nervous System on which the Contagion appear chiefly to act. Upon this Ref: it may be that those occasional Causes which induce an increased Sensibility or Irritability of the nervous System are the only Causes w: predis: = pose to this Disease. Tranquillity most effectual to bring in D: Buchanan's Case

5: The Blood is renewed every two or three Months insomuch that none of its former parts remain. now as this is the Case why should it not a second time be subject to contagious Diseases? — we know of no well attested Facts of Persons being seized w: contagious Diseases twice especially if they had them to a pretty high degree.

6: Even supposing a Ferment did act upon y: Blood so as dissolve it, yet this would not account

a 6th ~~Petechiæ have been supposed to be~~
indicate y Putrefactive ~~Putrefaction~~
(a) Nor does a dissolved state of the Blood by any
means suppose a Ferment? for a Fermentation
or Putrefactions preceding, as we sometimes see
it take place in Febrile Diseases such as
the Pleurisy & Peripneumony in wch; no one
can suppose any thing like a Fermentation
introduced into the Blood. Nor have we
Reason does y dissolved state or great Propation
of Strength suppose Putrefaction, both these
take place in y highest Degree in y Scurvy yet
we are sure this is no Putrid Disease. Lind 262

for the Phenomena we see attending this Disease, for we often find a dissolved state of the Blood, & some-times from putrid causes, & yet no Fever attends as in Scorbutic & Hectic Patients, & in some Salivations. See Boyer's Obs. on ye Plea: wth dis: Blood. (a)

7: In Order to support this Doctrine of Fermentation we are told that the Blood of Persons in hot Climates is much warmer that the Blood of Persons in cold Climates which disposes it more readily to fermen-tation, and hence putrid Ferments act more ~~readily~~ easily upon it. But this supposition is entirely without Foundation. The Blood of every Person in a healthy state retains the same uniform Temperature in all Countries even in those Cases where the Heat of ye Atmo-sphere is 20° or 30° Above the Ordinary Heat of ye Body.

— Some Who plead the Cause of Animal Heat in certain oscillatory motions of the nervous Other tell us that it is incapable of accumulating any further

(a) See this Observation more fully explained by Mr. Blair in Dr. Rustan's Thesis. p. 36. —

(b) From all this I w^d infer that Nothing can be agreeable to Nature for a time place in the Fluids of the Body in this Disease.

8^ly. Much has been said of ye Smell - Faeces Breath - Shots &c. but these are doubtful. arise from false Theory See Sauvage Vol: II &c.
Besides we find ye alte^n ye Secretions: is no Infallible Disease. — bringing up the Pus: side of Ja: the Sun.

Heat after the external Heat of the ~~Body~~ Atmosphere becomes equal to that of the Body. I endeavour to support this Opinion by the Analogy of Sulphur which loses its power of retaining the Electric matter the Moment it is reduced to a fluid state. But the Data on which this supposition is founded are by no means to be granted. I think a more simple solution of this Fact may be given by having Recourse to the Cold which is generated by Evaporation. (a) the more intense the Heat the greater Cold is generated, as the Perspiration will always be proportioned to the Heat. May not this be the Reason why Reapers, & those Workmen who sweat most freely, generally feel the Heat of Summer least? (b)

After having raised these Objections to the Theory of ~~Phlogiston~~ Fermentation it will be expected that I should assign some other

Mr.

proximate Cause. I wish I was able to do so. But such is the present state of our Knowledge in Physic that I despair of offering any thing worthy upon this Head. But [~~encouraged by that~~ Spirit of free Inquiry, and relying upon that Candor wch have hitherto so much distinguished this Society I shall wth diffidence presume to offer my Conjectures upon this subject [wch I shall hereafter be all Honour wth a diffidence wch becomes a Inquirer after truth presume to offer] 1: Is the Contagion which produces putrid Fevers of One kind which Operates differently in different Seasons, and on different Constitutions? or are there so many different Species of it? — If we attend to the most common Occasional Cause of these Fevers viz: putrid Exhalations, we shall be inclined to the first Opinion. But when we reflect y^t^ these Contagions act uniformly on all Constitutions which they affect, & in all Seasons of the Year we are led to believe the last Opinion, especially when we

(b) See Dr Gerdens Path. p. page 251.

(a) "Secundum Mea Experimenta me convicere de
vera Putredine, etiam nondum Alkalina in vivente
Corpore Animali. in tot morbis putredis etiam con-
=clamatis dum sanguis venâ tusâ eductus aut Ali=
=unde affluens, examinatus, nunquam ne in pessimis
quidem variolis Putredinis signa vel minima mihi dedit.
De Haen tom: 4 page 172

" Il seroit sans Doute bien singulier
que des Malades Auxquels on a Observé les Marques
les plus complettes de cette prétendue Pourriture, Fussent
non seulement en réchapper mais encore Jouir

add to this that Persons who have had one of these Contagious Diseases are not exempted from the Others. (b)

2nd Is it not more probable that the Contagion affects the Solids primarily rather than the Fluids? — and do not 1st the Fever, 2nd the Debility wch attends it, & 3rd the Impossibility of the Patients being seized a second time wth the it favour this supposition?

3dly may not the dissolved state of the Blood arise entirely from Debility in the Solids, especially as we always find it proportioned to this Debility? & may not the Hemorrhages which sometimes attend these Fevers be rather the Consequence of a preternatural Relaxation of the Solids, than of a putrid Acrimony induced in the Blood? — (a)

4th It has long been a Problem in Physic why Persons are subject to Contagious Diseases but once in their Lives. This Inquiry altho a Matter

peu de tems après de la santé la plus parfaite. Combien de gens d'ailleurs ont l'haleine si puante qu'on n'ose les approcher, & d'autres dont les sueurs, & la transpiration ont une Fétidité qui a de la peine à supporter, & qui ne laissent pour tant pas de jouir de la meilleure santé? Osera-t-on dire dans cette Circonstance que leur sang est corrompu? - Combien de substances ne connoit-on pas parmi les Végétales, les Animales & les Minerales, qui exhalent de leur Nature une Odeur des plus désagréable? - pourquoi les Liqueurs vivantes animales ne pourront-elles pas prendre ce Caractere très indépendant de la Putréfaction, dont on sçait que les Effets sont la Destruction totale du Mixte sans Retour? -" Lieutaud p: 21

of the utmost Consequence has Always been checked by resolving the Last ultimately into the Will of the Creator. But this mistaken veneration has done no less Injury to the Progress of Science in every Age, than it has detracted from the Honour of ye Author of Nature. In philosophical Inquiries we ought to follow the Rule of the Dragon, the more minutely we push our Inquiries into the works of Nature, the more evident Traces we find of the Wisdom of the Deity, & this Wisdom is displayed no less in Efficient than in final Causes.

I hope therefore I shall be excused in attempting a Solution of this Question.

The Force of Habit is well known in our System. all the Organs of Sense are liable to Sensations from Impressions communicated to them by external Bodies. these Sensations are more or less acute as ye Impressions have been more or less continued. a Man who has long been accustomed to study in a Place which

adjoins a Smith's Shop or the Street, is deaf to the Noise of the Hammer or Chariots which at first disturbed him, but hears at Once the softest Notes of Music, or even a Whisper in an adjoining Room.

a delicate Lady who has long been in a Habit of taking Snuff in large Quantities without feeling perhaps the least Irritation upon her Nose is thrown into convulsive Fits by the Smell of Much Amber-grease or even a Rose.

a Person who has long been used to chew Tobacco feels none of those Sensations excited on his Tongue he did the first day he took it in his Mouth, but if any thing of a different nature with the least Degree of Acrimony is applied to his Tongue, he immediately feels the same Sensations excited on it that a Person does who never chewed Tobacco in his Life.

Men where Office it is to clean necessary Houses I have been told never smell any thing Offensive in the bathrooms tho'so they are perpetually exposed to, & yet sneeze most violently when they take a Pinch of Snuff. Instances of this nature might be multiplied without number.

We before aimed to prove that Contagion was nothing but a Stimulus Applied to the Nervous System which induced an increased action of the vessels. If this is the Case may not each contagion leave some state of Insensibility upon the nerves, wch: we find the sensual Impressions Plots said leave upon each of the Organs of S[illegible] — — Is not this more rational than to suppose that Contagions purify the Blood, & expel something from it wch: we bring into ye world wth: us which is absolutely necessary to our future Health? — I know it will be Objected

(a) I grant indeed that if the Impressions we before spoke off are intermitted for any considerable time they act as strongly as when a Habit has been acquired in the Body. This may easily be accounted for, nor does it in ye least affect the Force of these Analogies. For we must remember that they are applied only to those of the Organs of Sense, & are never so violent as to induce any Commotions in the System whereas the stimulus of Contagion is so violent as to affect the whole System

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here that the General Disease & Fever are received as often as we are exposed to the Occasional Causes of them. to this I would answer that these Diseases appear to be less connected w: the nervous System, & this I take to be the Reason why they are never attended w: any Fever except when it arises from topical Inflamation. the infectious Matter is moreover in a fixed State, & hence exerts a more partial Stimulus. ~~for on this Theory only can we tell the Reason why~~ Prior Mash be when worn around the [illegible] Against Contagious Diseases, by exciting a Stimulus on the Nerves, & thereby rendering them less sensible to ye Stimulus of Contagion. Dr Fla[illegible]man tells us that ye Labour & gouty People, [illegible]nists, were the only People who escaped ye Plague when it raged in London, & there are few who have been conversant w: the Contagious Diseases but what have seen

an Impression so strong as to leave the Nerves
collous if I may be allowed the expression
to all future Impressions of a like nature.

them often prevented by precautions of a like nature. it is worth observing here that $\frac{2}{4}$ stimulating ~~substances which are applied to the skin or mucous~~ are only ~~effective while they continue~~ to exert their stimulus. for it is no less a law in impression $\frac{2}{4}$: perception, that but one can be made upon a sense at once. it would be easy to show of how great application this law is in physic.

5.th Another question may occur, & that is how is it that one part of the [illegible] should be so uniformly affected with the same contagion? — I think a probable answer may be offered to this. we have before presumed that contagions are in their nature specifically different. it is a well known fact that there are specific stimuli in medicine. the operation of mercury can be no ways explained but by supposing the salivary glands to be specifically

affected by it. Unless we admit this Doctrine I know not how we shall explain the Reason why a few Drops of the Antimonial Wine should excite such a Sickness in the Stomach, & yet excite no Sensation on the Tongue, or even on the Eye itself, or why a large Quantity of Salt may be taken into the Stomach without producing any Sickness, & yet a few Grains of it we know excite the most uneasy or acute Sensations when applied to the Tongue or dropped into the Eye. Dr. Cullen has lately thrown out Hints which confirm this Doctrine beyond a Doubt in the very ingenious Manner in which he has diversified the Sense of Touch. Now when we admit these Truths we may easily comprehend the Reason why the same Parts of the Body are so uniformly affected by the same Contagion such as the Skin in the Small Pox – the Lungs in the

in some cases however the Predisposition of the Patient by some of ye Causes accurate in such a Manner ~~as that~~ an Apoplexy a ~~sudden Apoplexy is~~ induced upon the whole ~~nervous~~ System Disease so suddenly as that no Marks of preceding Infl. can be perceived. This Apoplexy we know is ~~the~~ often the ... of Gangrene, ~~from Mortification~~ ~~is~~ ~~there~~ two lines of Cold ~~Mortification~~. it will be easily illustrated this further from ye Ana. of Poisons wh. we produce their Effects so suddenly, it is now universally ack. ye Brain Operation is entirely ment. to the Nervous System, yet how soon do we see all ye Symptoms of

see page 3d

Measles - & the Liver in the bilious Fever.

6th It is now universally allowed that Fevers more especially those of the intermitting kind are owing to certain Affections of the Nerves. the notions of morbific Matter have been justly rejected from our Theories of them, & the great Sediment in Urine are easily accounted for upon Principles far more simple than the Deposition of acrid Matter which fed the Disease. now if we can produce any Instances of the bilious Fever resembling Intermitting Fevers it will afford a presumptive Argument in Favour of its being in this manner an primary Affection of the Nerves. an ingenious Member of this Society informed me that he had been a Patient in a bilious Fever who had a regular Discharge of Bile every day for several Weeks from the Hours of 12 till 2 in the Afternoon. a time in

8th a very Nice Question arises here, & that is, if we deny Putrefaction's taking place in the Fluids in what Manner shall we account for the Propagation of the Disease? ~~answering~~ to this Answer: I would by no means reject an Assimilation ~~taking~~ being present in the Body. ~~but at the same time found~~ this we must admit, nor is it any way repugnant to the Doctrine we have ~~[illegible]~~ endeavd to establish especially when we extend our Ideas of Assimilation. - Many things we see in Nature from established Laws wch we cannot explain produce things wch have no Resemblance to themselves. Thus the ~~Principle of Gas~~ is ~~found from~~ similar Mixt: Water, & the ~~Mineral~~ ~~of Putrefied Blood of Human Body~~ Body is capable of being converted into a Principle of a Tree. And certain Fluids in the Body are capable of being ~~converted~~ changed to into a Matter by the secretory organs wch bears

which we know all Fevers have their Exacerbations &
in which Persons in perfect Health have an evident
Quickness of Pulse. This hard to tell from whence
this rises. perhaps it may depend upon the Re-
volution of the heavenly Bodies the Influence of wch
over our System more especially in inducing peri-
odical Habits is too evident to be doubted.

7th It is a Law in our System that all Stimuli
excite Inflamation when applied to the Body, and
that this Inflamation always proportioned
to the greater or lesser Sensibility of the part affected.
the Tendency of all Inflamations we know to be
to Gangrene or Suppuration, & this are always
brot on sooner or later according to the violence of
the Stimuli applied. Do not all Contagions therefore
act as Stimuli on the parts they affect? & do not
the Gangrenes or Suppurations which happen in
all parts of the Body evidently show that an Infla-
mation

not ye least Resemblance to any of the component parts of the Blood. in the same manner we may conceive of an Assimilating going forward in the Body w^ch ~~w~~ is by no means of ye Putrefactive kind. — the Measles is no less contag: y^n Bil: Fever, & yet no One will pretend to say there is Putrefactive attending.

(a) Nosologia Vol: II. page 363.

∴ Bill^n likewise found ye Blood wch was Inf^t Crust. 1st stage + 28

Simple bled in the first stage of ye Jail or Hosp^l Fever wch is highly putrid, & yet found the Blood tiny ~~[illegible] it attacks wth all~~ ~~ye Liquids of Inf^n~~ page 299. he likewise upon Dissection often found Abscesses in the Brain ~~wth Head~~ wth its Ventricles filled wth ichorous ~~Lacunant~~ Matter. page 311 See 34 Jail Fever p 156

(b) Nor ye Plague itself shows greater marks of Inf^n than this. from Dissections of Bodies dy^g inflam^d: died wth it at Marseilles some of ye Viscera were always found inflamed or mortified.

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has preceded? — I am not singular in this Opinion. Sauvage places the Plague itself among the Inflammatory Diseases. his words are "Morbus est Inflammatorius; quod indicant Ardor, Sitis, Rubedo" and Dr Sydenham we find treated it as such, and never failed to order Bleeding in its first Stages. (b) See page 8:

After what has been said, it would be improper to enlarge upon the Ordinary Bounds of a Paper to dwell upon the Ratio Symptomatum. if the proximate Cause we have assigned is [illegible] it will be no difficult matter to account for most of the Symptoms which happen in this Fever.

I have nothing new of any Consequence to offer upon the Prognostics more than what our learned Professor Dr Gregory delivers so fully in his Lectures. I would only add two Observations under this Head which are deduced entirely from my own

8th Nothing now remains but to say a few things concerning the Nature of the Contagion or Miasma w: produce this Dis-ease, but as this Subject has no immediate Con-nection w: our present subject we shall say but a few words concerning it. From what has been said it appears that this Disease can never be produced the worst by the Concurrence of some highly acrid matter introduced into the Constitution. This Matter may be originally the Product of an Animal or Vegetable Putrefaction. we have many Instances in of Malignant Diseases being produced from both these Causes. See Dr Rodgers Discourse of Cork page 181. in w: Manner these Substances are diversified so as to produce diff.t Diseases is hard to tell. perhaps it may

repeated Observations.

1st If the Patient feels such a sudden Inclination to vomit that he ejects the Contents of his Stomach w: considerable Force in attempting to rise it it presages the utmost Danger.

2nd If he feels such a sudden Inclination to go to Stool while in his Fances that he is unable to retain his Faces till he is provided w: a Bed pan or Close-Stool, it is a Sign that prognosticates Death to be at hand. I shall now proceed to the — —

Method of Cure

See page 30
Opthor: Lida.

The Indications of Cure in this Disease are two

I. to Abate the increased Irritability of the System. &
2. to Abate the Symptoms.
3 III. to Obviate debility & strengthen the Patient.

To the 1st Indication belong.

1st Bleeding — This is of the utmost Consequence in the Beginning of this Disease. All Authors agree in

depend upon different ~~states of putrefaction~~ changes induced in the contagious matter: may be derived from the different circumstances of heat and moisture operating upon them. in this state they are called miasmata. ~~often they have been produced~~ + from the Eq: 26. We often see the disease propagated when ye disease is produced &c ye called contagion: in its first stages long before we can suppose any thing like putrefn to take place, or even before any of those symptoms occur w: have been supposed to indicate the presence of putrefn in the blood, but wch we have shown may depend upon other causes, & are often connected wth diseases which do not arise from contagion, but are of the true infy nature.

After all I grant there is often a putrefy caused by retention & want of food, but this is a very happening infy fever, & does not arise from a putrid ele-
ment.

the propriety of this Remedy. no limited Quantity of Blood can be fixed here. it must Always depend upon the Age - Temperament - State of the Pulse - & bis Vita of the Patient. Hillary orders it for 15 ℥.

2nd Laxatives. These are likewise highly useful. When the Bowels are constipated, but they should be of the most gentle nature. the Sal Glauberi seems to answer best for these purposes. I have seen ℥ss of it given every four hours for several Days with great Advantage. when taken in these small Quantities it lies longer on the Stomach, is more cooling & less apt to purge the Patient immoderately.

Vomits have been given by some & much recommended by Others, but I think w: no Advantage. the Indication w: w: they were given is no less erroneous than the Practise has proved hurtful. the sickness at Stomach depends entirely upon an increased

chiefly have aimed at is to prove y^t ye Disease is seated only in ye Nervous System, & y^t the ~~Fluids are affected~~ only in Consequence of this, & [y^t] from this Pathologic disco: in a Case of this kind at Copenhagen from a Number of Dissections insomuch y^t he imagin'd it was ye Seat of it. Histor: Anat: Rar Cent. 81 hist 56. see Hill: on the Dis^s of Vomits p: 159. he always in Dissections found ye Stomach inf^d.

Indication of Cure must then chiefly be in removing the Affections of ye Nervous System.

1: If Vomits are given in this Dis^e let ye most gentle Nature. a little Ipec dis^d in water.

(2)

Irritability & Inflamation of this ~~stomach~~ tissues, & not upon any acid or putrid Sordes lodged in it. Altho' we evacuate the Stomach of the Bile &c ch w: it contains by giving a vomit yet we only lay a foun: dation for a greater Accumulation of it by increasing the Stimulus which first derived it there. It has been found in some Cases where the Patient has com: plained of the most violent sickness at Stomach, & has vomited up every thing he took, that upon giving a vomit ~~too~~ no [illegible]e or any thing like it has been thrown up which sufficiently winces that it depends upon Inflamation. to Alleviate the nausea & vomiting I know of Nothing better than Riverius' Mixture, & Plaster of Thericaca applied to the external Region of the Stomach. (2)

3:d Cool Regimen - consisting in 1:st Cool Air. 2:nd Cold Drink & 3:d Ripe Fruits.

Ind.ns of Cure &c: always be founded upon
y proximate Cause. ~~we have attempted to show~~ it appears now
y Contagious Matter ~~not a proof~~ has a ~~powerful~~ operating
~~as a Sedative~~ upon y ~~Nervous~~ the nervous system
y Body in a
~~upon y~~ from y Arterial System, & 2.nd: as a Sedative
upon y Nervous System. to this we might add
its Effects upon y Fluids where it act ~~on~~ in
such a Manner as to produce an Assimilation
in some part of them, the Indica.ns of Cure accord.g to
y Plan we have laid down must be
1 to Abate y increased Action of y Arteries
2 to Obviate Debility
&c Dr Brocklesby &c

Cool Air. There is not a greater Error in Modern Practice than keeping Patients too hot in Fevers more especially in those we have been describing. future Ages will be as much surprised at our Conduct in this Respect as we are at the Folly & madness of Asclepiades who refused his Patients Drinks of all kinds in the first Stages of Fevers. both Practices proceed from equally false Theories. the sagacious Dr Sydenham first endeavoured to reform this Practise. we find him dwelling upon it thro all his writings. the amazing Success which has Attended the new Mode of Inoculation seems to be owing to nothing else than the free use of the cool Regimen; & from many Circumstances we have Reason to think the small-pox & Bilious Fever more nearly related to each Other than have generally been supposed.(a) I would therefore Order the Windows of my Patients Chamber to be kept constantly Open,(b) & would contrive to have Artificial

"(a) Etiam amplo Conclavi tenendus, qui multum et purum Aerem trahere possit; neque multis vestimentis strangulandus, sed admodum levibus tantum velandus est" Celsus Lib. III Cap. 7 page 134

"(b) See Shakespear's King John. 4th W: meet proof: Might they adopt the language of the King John in the Play when he lay, dying 3rd W: a violent Fever bed from a nother cause"

(b) See Dr. Mich. Rosa.

Draughts of Air introduced into it, they should like wise set up as much as possible, & be covered w: the nothing but the lightest Bed Clothes. I would besides this Order the Floor to be sprinkled with Water or Vinegar w: ch by evaporating would induce a grateful Coolness in the Room, the Heat of which should always be rather below than above 60: .

2: nd Cold Drinks. Nothing can be more cruel, or ill judged than to deprive the poor miserable Patients of that w: ch they cry out so much for. How many Instances have we of the most remarkable Cures being performed by a Draught of cold Water! Why then do we oppose a Practice w: ch Nature indicates & Experience justifies? Instead of giving my Patients warm Drinks I would strictly forbid them to take any thing but what was cold. They should all be acidulated with the Spirit of Vitriol.

3: Ripe Fruits. These are of the highest use in all fevers of this kind, not only because they are grateful to the Patient, but upon the acct: of their cooling & Cathartic Qualities. the great Dr: Boerhaave first introduced them at the Risque of his Reputation, and later Experience abundantly confirms their usefulness. It is worth observing here how bountifully the Author of Nature has provided those Countries where these Fevers prevail most, w: the most delicious Fruits, w: are generally produced in that Season of ye Year wn these Fevers rage most.

To the II. Gen: Indication belong

1: Preparations of the Bark & Elixir of vitriol.

These Medicines are the only Ones on w: I would place any Dependance. their usefulness is sufficiently warranted not only by the Consent of all Authors, but by the most desirable Success. Dr: Sydenham

(a) I use the word putrid here in Compliance
with the common Language of Physicians. —

(b) Exp: 5th w: ~~Lemon~~ Serpentaria
Flor: Cam &c

It appears from Sir John Pringles Exp: that
Camr Flor & Serp were equally powerful in
resisting Putref: out of the Body. if the Bark's
reputed Antiseptic Qualities what
Ch: give it such great advantages above the

first introduced the use of the Bark in putrid Fevers of all kinds (a), & in this was followed by Dr Morton & many Others, of a later Date, such as Murpham Cullen & Dr Green. See Vol: 1: of the last mentioned Author's works page 265. Each of these Authors recommend it in the highest State of ye Disease, & do not confine its use to Remissions wch seldom or never happen in those Fevers where its use is most indicated. The Bark in those Cases is generally given as an Antiseptic. This Notion was introduced first from seeing its Effects in preserving Bodies from Putrefaction. but I deny its having any Analogous Operation on the human Body, & I would therefore reject the Term entirely from Physic as highly unphilosophical (b). There are few of us who but what have seen approaching Gangrenes in a remote part of the Body at once checked by

Other two Medicines in these kind of Fevers?

Besides

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diseased Blood &c

~~Putrefaction~~ Causes their Action. This was long ~~supposed~~ alledged to be owing to a Putrefaction of the Blood, but can now be explained more rationally by had Recourse to the Coloria induced upon ye Nerves.

a few Doses of the Bark. did ~~the Bark have mix~~ it in these Cases
with the Blood? – restore its Consistence? or dissolve
it with fixed Air as a late Author has suppos'd?
— "Credat Judæus Apella". — such
Suppositions need no Refutation.

2.nd The free Use of Wine. Among all the Cordials w.ch
have been introduced into Medicine there is none to
equal this. it ~~per~~ exciting big.n of Pulse & promotes
a due Distrib.n of ye nerv: Influence. "Utilitatem bene
via Dorum potentia aquan" I am apt to think
the Success w.ch Dr Pringle ascribes to the Serpentaria
depended entirely upon the Wine which he gave w.th the it.
— the best Wine in these Cases is Claret or good Old Port.
the great Advantage of these Cordials is that they revive
& strengthen the Patient without exciting any Heat
or encreasing the febrile Symptoms. the Wine in

Vomitos

Cu/ Blisters doubtful! Hillary rejects them p: 170. Purchases from Henry! Systems in so highly irritable a state that the least Stim^n excites Inf^m w: tendi to Gangrene. See Lind on Fevers

Cullens days are gone.

recommendes on

They may be seen

cold Eliminated - Priuglés Tart w^d make me doubt of Use. never saw it:

these Cases is generally given in too small Quanti:
ties to do Service.

3.rd Nourishing Diet. to this Head belong Panada Toasts
Gellies &c which are too well known to be dwelled
upon here.

4.th Exercise. particularly riding in a Coach as the
Patients weakness will seldom admit of his using Ex:
ercise of a more violent nature. (a

B: Rush

(a This have I finished w.th Improvements in this
+ See page 37.
Essay. If I have advanced any thing in it ?
will tend to throw any Light upon the Cause of the Disease
~~[illegible]~~, or lead to a more Suc:
cessful Practice in treating it I shall think
myself ~~very happy in Providence for the opportunity~~
~~in my power thereby to do~~ amply

(as) All I intend by it is, to inform the world that I have had the Honour of being your Pupil, & that I ~~am bound of but the little~~ ~~[illegible] to: the Office who have had my lib~~ ~~[illegible]~~, most my fellow: the pils carry with them more dirty? marks of their being far? to: of my Instructions, yet none of them exceed in Gratitude & Esteem my de

Yr: Obedt

B: H

repaid for my trouble. But if I have not ~~[illegible]~~ ~~[illegible]~~ shall take Refuge under the Words of the Poet "Magnis Latet Voluisse".

Tho.s Cullen M.D.

I do not ~~[illegible]~~ presuming Reason Upon this ~~[illegible]~~ to raise ~~[illegible]~~ Reply ~~[illegible]~~ Refutation by more Sublime Arg.s ~~[illegible]~~ usually constitute Dedications, ~~[illegible]~~ much less do I mean it as an Acknowledgement of the Obligations I owe to you. The first is too well known to receive any additional Illustration from any thing I can say, and the last are of too strange a nature to be expressed fully by any Form of Language.

(Lib) May you long continue to adorn that

Lest Friendship owes so much of its
Incent Rep.n to your Genius & Industry!
~~and may you have the [illegible] studying~~
~~[illegible] the [illegible] Potsdam [illegible]~~
~~& [illegible] may the joint Efforts~~
~~[illegible]~~ & may you every day
enjoy more & more of the sublime Plea-
sure which arise from
communicating Rap.d & Knowledge
to all around you.

— had I entered into a minute Delineation of all those Questions to which this subject would naturally have led, this Dissertation wd have been far exceeded the Limits of a Pamphlet. I proceed, Reader, to delivered my Sentiments with ~~the~~ diffidence wch becomes a young Author, & a candid Inquirer after Medical Truth.

I cheerfully shall flatter myself if any thing I have hinted here will tend to ~~throw some~~ ~~Light upon this Subject~~ ~~lead~~ throw some Light upon this Disease; or lead to a more successful Treatment of it! — But if I have failed in this I shall take refuge under the words of the Poet, & say "magnis tamen excidit ausis"

There are two ~~Rem~~ Remedies which do not properly come under any of y^e ~~two~~ Heads we have mentioning yet viz Bougies & Blisters. ~~many~~ the first are for the most part given very promiscuously in this Disease. Dr Q^y is the only Author who pushes y^m them. how far they may be useful & careful in those Privates where the Bil: Duct prevails only in a slight Degree, I shall not pretend to say, but in ye warm Climates where it requires more Violence they seldom fail of doing a great deal of Mischief. we are taught from Dissections of Bodies y^t have died of this Disease y^t not only the Gall: Bladder is found swelled & inflamed, but also the Duodenum & very often

the Stomach itself. the Efforts of Vomiting therefore would in this Case have the most dreadful Consequences. Altho we evacuate the sup: 29. It is a wrong Notion to all Suppose ye: Affections of the Stomach depend upon Lordes lodged in it. most of its Diseases are ye Consequence of Cons: or Acrimony I would therefore advise Ref: the use of Vomits except in the worst kind states of Fever Disease, & even in these Cases I would Attribute their Success more to their prom: a Detern: towards the Skin & thereby obviating the febrile Spasm rather than to their evac. any Lordes from the Stomach. Cimiatrica, to alleviate ye Nausea & Vom: there is nothing better ye Rind &c

Practices of Physicians Dep: to Stomach.

— the use of Blisters in this Disease is no less ambig: y. y Exhibition of Vomits. ~~in the first stages of the disease~~ ~~I shall not~~ How far they might prove of service in its first stages I shall not pretend to say as I have never seen them tried in the early period of the disease. Dr Lind relates some remarkable Instances of their ~~Ad~~ Resolutive in the Beg: of a Yellow Fever which was brought from America during y late war ~~to Gt Britain~~ into England but I am apt to think the Disease was so changed from wch was originally that it w: not do to apply this Practice universally to all Cases in the

second stage of the Disease we have marked but they are evidently hurtful, not by depriving the blood, & thereby increasing its putrid Diathesis, as upon Dr. Dobson's supposed ~~destroyed~~ cause? the Chlorosis of the Females, & thereby endangering Gangrenous in the places where they are applied. Sir John Pringle ~~has~~ mentioned a case of a soldier in w. confirmed this to his own satisfaction, hastily cured by a plentiful use of the Bark. It is much to be wished that the proper use of Blisters was fully ascertained in this as well as in other malig. Fevers.

— we have too Facts in Medicine to speak w. any degree of confidence either in favour or

of them. for my part I must acknowledge my want of Experience & Observation upon this Head.

Thus have I finished w: I proposed in this Essay. see p: 37

Acids - These in like manner have been given w. a view of obviating putrefact. & coagulating the Blood. But their power tion is entirely confined to the Stomach, from whence their effects are extended to every part of the ~~system~~ Body. They serve to brace up the System, & prove excellent cooling Medicines. The Vitriolic Acid is to be preferred to the other Min: kinds, as being less heating, & more agreeable to the Stomach. —

I will not however say but what both Diseases may have been originally the same, their ~~Difference~~ may depend upon the Influence of Climates upon them: Dr Buck seems to be of this Opinion. The Lamb as well as the Porilous Fever in time becomes contagious.

I will not however venture to say but that they may have been orig.ly the same Disease, & are only diversified by the Difference of Climate, or & ~~the varying Circumstances of the Climates~~ for even this mash down in time become contagious, & in many Cases puts on many Symptoms of y.e Bilious Fever of the West Indies.

see Book